

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference Case P-10091		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2003/000917	International filing date (day/month/year) 03-06-2003	Priority date (day/month/year) 07-06-2002	
International Patent Classification (IPC) or national classification and IPC G05D 1/03, A01D 34/00			
Applicant AKTIEBOLAGET ELECTROLUX ET AL			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (sent to the applicant and to the International Bureau) a total of 9 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 04-12-2003	Date of completion of this report 03-09-2004
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2003/000917

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 3-14 as originally filed/furnished

pages* 1-2 received by this Authority on 01-07-2004

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 16-22 received by this Authority on 01-07-2004

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-8 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-34</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-34</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-34</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: US 4316253 A D4: US 5974348 A
D2: WO 9915941 A1 D5: WO 9938056 A1
D3: WO 9959042 A1

Document D1, cited as category X in the Search Report, and documents D2 and D3, cited as category Y, have been reconsidered to define the general state of the art. Also, documents D4-D5 represent the general state of the art.

This report is based upon the amended claims as filed with the letter of 01-07-2004.

The claimed invention relates to a procedure and an electronic navigational control system for a self-propelling device. The procedure and system include a signal generator, sending a current through a navigational control station. The current generates a time and space variable magnetic field, whereby the self-propelling device is controlled based on the properties of the magnetic field.

Document D1 discloses a method and an electronic navigational control system for a self-propelling device. More specifically, the document relates to automatic and precise positioning of ships, but the invention may be applied to other kinds of moving bodies (column 7, lines 44-50). On a platform, which corresponds to the navigational control station in the application, a current generator (3 in fig.1) is positioned. The generator sends a current through two wires.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

(6 and 6' in fig.1), thereby creating an, in the air-medium propagating, time and space varying magnetic field. The ship carries units (5 in fig.1) that sense the magnetic field transmitted from the platform (column 1, line 58 - column 2, line 8). Thereafter, the sensing units transmit a processed signal to a driving source on the ship (fig.13 and column 7, lines 9-40). The ship can then be manoeuvred, based on the properties of the sensed magnetic field.

Document D2 discloses an electronic bordering system for a self-propelling device. An electric cable separates an inner area within the border cable from an outer area. A signal generator feeds the border with a current, generating a magnetic field. The working tool is preferably a vacuum cleaning or a grass cutting robot (page 1, lines 5-15).

Document D3 also discloses a system with a self-propelling device. The system includes boundary wires (48, 50) located along the outer edge of the area to be covered by the self-propelling device. The wires are connected to a power supply and a magnetic field is created. In one embodiment, the current through the wires is pulsed (page 9, line 6 - page 10, line 14). The sequence of pulses includes synchronization pulses.

Document D1 is considered to represent the closest prior art. The difference between the claimed invention and D1 is that the sensed magnetic field, in an area mainly within the range of the navigational control station, at least at one point of time has different directions. The field extends outside the area and a field change path is created along which the self-propelled device can navigate. The problem to be solved by the present invention is that the user has to put down a navigational control station comprising a big closed loop. Further, present types of navigation stations normally direct the robot along a path, which is repeated each time the robot is directed. Thereby, the robot's wheels will cause wear along the surface they pass.

Documents D1-D5 do not disclose the claimed method for manoeuvring a self-propelling device and the claimed electronic navigational control system. No relevant combination of the cited documents would lead a person skilled

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

in the art to the invention defined in the claims. The invention according to claims 1-34 is thus novel and is considered to involve an inventive step. It is also considered to be industrially applicable.

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International application No.

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 20 cannot refer to claim 22.